

**INTRODUCTORY PHYSICAL GEOLOGY GEOL101-001
SPRING 2022 - FAIRFAX CAMPUS**

Syllabus

Where: Nguyen Engineering Building 1101 – Fairfax Campus

When: MW 5:55-7:10 PM

Instructor: Dr. G. Mattietti; **E-mail:** gkysar@gmu.edu

Office Hours when and where: Wednesday, 11 AM to 1 PM or by appointment. In Exploratory Hall, room 3413.

Course Objectives and Learning Outcomes

This course provides an introductory knowledge of Physical Geology and the integrated Earth Systems. The course covers knowledge about minerals, the origin and variety of rocks and their importance as resources, and the Earth processes that shape our world. The course covers the main natural geologic hazards and their related risks. This course presents the theory of plate Tectonics within a framework of scientific reasoning. This includes examination of how scientific ideas evolve with societal changes and technological improvements. The course includes a final module on planetary geology.

Students who apply themselves to the study of the course material develop an appreciation of how Earth system components interplay to provide both resources and challenges to our livelihood. Students become conversant about the multidisciplinary nature of the Earth Sciences. Successful students will be able to reason about natural processes that characterize the dynamic nature of the Earth and consequently to make informed decisions regarding personal and societal actions.

Instructional Material

Textbooks are necessary but no textbook can substitute for effective studying. To help you learn, here are your textbook options, choose what you think works best for you:

- Open source (free) - two e-books:
 - An Introduction to geology by C. Johnson, M. Affolter, P. Inkenbrandt, and C. Mosher <http://opengeology.org/textbook/>
 - Physical geology, 2nd edition by S. Earle <https://opentextbc.ca/physicalgeology2ed/>
- If you prefer a hard copy textbook, the recommended one is: [Essentials of Geology, 13/E](#) Lutgens, Tarbuck, and Tasa, Prentice Hall editor. Used, and/or loose-leaf copies are acceptable. The 12th edition of the textbook is also acceptable. Ancillary material from the publisher are not required nor suggested.

Additional course materials: Pdfs of the lecture-course notes, lecture activities, test and test practice are available to the students through Blackboard*. Notes for each lecture are posted the day before class*

Course prerequisites

There are no prerequisites for this class.

Course Assessment and Grading Scale

GEOL 101 grade is based on Lecture and Laboratory scores. Assessment of the lecture section is based on the results of 3 equally weighted exams, all 50 multiple choice questions. All three lecture exams count, NO lowest score exam will be dropped.

All exams are scheduled during class time and are available for the scheduled time ONLY. Each exam covers 1/3 of the semester and it is non-cumulative. There is no final exam, however, exam 3 is scheduled on the day of the final exams as scheduled by the registrar and is limited to 75 minutes. Online exams are taken on blackboard through Respondus Lockdown Browser. All exams are taken individually; students taking the exams observe the code of academic integrity.

The final grade for GEOL 101 is calculated as follows, with no exceptions:
25% (1st exam) + 25% (2nd exam) + 25% (3rd exam) + 25% (lab score) = 100%.

Your final total score will generate a letter grade as detailed in the grading scale.

A+ ≥99;	A ≥95% to >99	A- % ≥90% <95%
B+ ≥87% to <90%;	B ≥83% to <87%;	B- ≥80% to <83%
C+ ≥80% to <75%	C ≥70% to <75%;	C- ≥65% to <70%
D ≥55% to <65%;	F <55%	

- No final curve, unless the end-of-semester final average for the whole class (based on all 3 lecture exams and lab scores) falls below 80%
- Absence/fail to submit an exam will result in a 0 (zero) score for that exam. No make-ups granted unless extenuating circumstances occur (see below course Policies).
- NO Extra-credit available. During lecture, there will be opportunities to collect additional points by working at learning activities. These points will be added to your exams and will be the sole opportunities for additional course points, provided they are completed during class time. Extra-credit based on individualized assignment will not be granted under any circumstance because it is unfair to the rest of the class.

Laboratory

This course has an associated portion that will start on the second week of the semester, starting on January 31, 2022. Your laboratory instructor will provide all the details for the laboratory sequence. All University Policies apply to the laboratory course. Your laboratory instructor will provide you with specific course Policies.

Course Policies

You are responsible for reading attentively this syllabus. By staying enrolled in this course, you agree to the following course policies:

- Attendance: not mandatory, but highly recommended if you want to do well.
- Communications: Email is the official way of communicating with students. Any email from me will come from gkysar@gmu.edu or through blackboard. In accordance with protection of privacy best practices, I will not respond to email sent from non-GMU email accounts. It is your responsibility to make sure that your GMU email is set up properly and to check your email regularly. Your email must have a subject line because emails without subject are filtered as spam mail.

- **Class etiquette:** All students in attendance have the right to a safe and quiet learning environment. Respect all rules and regulations established by GMU (see university policies below). Come to class on time and if you must leave earlier do so in a way that will not disturb the other people present in the room. During class, mute your cell phones. Class disruption of any sort will not be tolerated.
 - **Extenuating circumstances** might occur that prevent you from taking an exam. If such circumstances can be justified, a make-up session will be arranged. Should you realize you cannot take an exam as scheduled, inform the professor immediately. As per GMU policy on religious festivities, you must inform the instructor at the beginning of the semester if you will be absent to an exam in order to schedule a make-up.
 - **Make up of exams** for which no evidence of extenuating circumstance is provided, carry a 15% penalty.
 - **Course materials** All course material (note, tests, outlines, slides, activities etc.) is protected by U.S. copyright law and/or is intellectual property of the course instructor; you cannot repost this material on the web, on online study sites or distribute in any other format outside the class.

University policies

As a GMU student enrolled in this class, you must be aware of the following:

- **Health and safety protocols** established by the University, go to this link and scroll to Health and Safety <https://www.gmu.edu/safe-return-campus>
- **Privacy** is governed by the [Family Educational Rights and Privacy Act \(FERPA\)](#) and is an essential aspect of this course. Students must use their GMU email account to receive important University information, including communications related to this class. In accordance with FERPA regulation, I will not respond to messages sent from or send messages to a non-GMU email address.
- **The Honor Code** is an integral part of the educational process, and GMU takes these matters very seriously. Violations of academic integrity occur when students fail to cite research sources properly, engage in unauthorized collaboration, falsify data, cheat during exams and in other ways outlined in the [Honor Code](#). Students accused of academic integrity violations should contact the Office of Academic Integrity to learn more about their rights and options in the process. Outcomes can range from failure of assignment to expulsion from the University, including a transcript notation. The Office of Academic Integrity maintains a permanent record of the violation. For more information, please refer to the [Office of Academic Integrity website](#).
- Be aware of the issues related to the use of study sites, refer to the instruction from the **Office of Academic Integrity** with important information about study sites. All students must watch this video: <https://youtu.be/oKbTrgBCN7c>

- **TITLE IX** As a faculty member, I am required to report all disclosures of sexual assault, interpersonal violence, and stalking to GMU-Title IX coordinator at <https://diversity.gmu.edu/title-ix>. If you wish to speak with someone confidentially, contact the Title IX office at <https://diversity.gmu.edu/title-ix/who-can-i-call>
- **Disability Services.** <https://ds.gmu.edu/> Any student who may need an accommodation based on the potential impact of a disability should contact Disability Services ods@gmu.edu to establish eligibility and to coordinate reasonable accommodations. In order to receive accommodation for exams students must submit their DS paperwork before the exam.
- **Counseling and Psychological Services** <https://caps.gmu.edu/> GMU offers counseling and psychological services, supporting mental health and personal development by collaborating directly with students to overcome challenges and difficulties that may interfere with academic, emotional, and personal success.
- **Diversity and Inclusion:** <https://diversity.gmu.edu/diversity> Faculty, staff and students in this course welcome and value individuals and their differences including race, economic status, gender expression and identity, sex, sexual orientation, ethnicity, national origin, first language, religion, age, and disability.
- **Observance of religious holidays.** In accordance with University policy, students should notify faculty during the first week of the semester of their intention to be absent from class on their day(s) of religious observance if that should coincide with an exam. For details and policy, see: <https://ulife.gmu.edu/religious-holiday-calendar/>

Course Calendar*

- This calendar displays dates of lectures only. See Academic Calendar for standard holidays.
- Notes and reading assignments for each lecture are posted on blackboard the day before class

Date	Lecture topic		
Jan 24	Part 1: The materials and structure of Earth	The general structure of Earth	
Jan 26		Minerals	
Jan 31		Common mineral groups and uses	
Feb 2		Igneous Rocks	
Feb 7		Volcanoes	
Feb 9		Erosion, transport deposition: the making of sedimentary rocks - Soils	
Feb 14		Metamorphic Rocks	
Feb 16		The rock cycle - Mineral resources	
Feb 21		Exam 1 Q&A	
Feb 23		EXAM 1 – during class time	
Feb 28	Part 2: surface processes	Works of gravity: mass wasting	
Mar 2		Works of water: running water on landscape modification	
Mar 7		Floods - hazards	
Mar 9		Groundwater - hazards	
Mar 21		Glaciers-Online	
Mar 23		Coastline dynamic environments	
Mar 28		Earth's climate	
Mar 30		Exam 2 Q&A	
Apr 4		EXAM 2 – during class time	
Apr 6		Part 3: seismicity, Tectonics, hazards/resources. Planetary geology	Geologic Structures
Apr 11	Seismology		
Apr 13	Seismic hazards-risks		
Apr 18	Plate boundaries birth of a theory – Geology of the seafloor		
Apr 20	Geology of resources		
Apr 25	Hazards		
Apr 27	Geology of the solar system		
May 2	Planetary geology - Exoplanets		
May 4	Review - Study day – Q&A		
May 16	EXAM 3 4:30-7:15 PM - ONLINE		

* Instructor reserves the right to change lecture topic and order to fit class needs and learning objectives.

Effective studying practices for GEOL 101

The following are suggestions from tried and true strategy for doing well in this class:

1 – There is a considerable amount of material to know for GEOL 101, technical terms and names to remember that are associated to the concepts needed for the understanding of geological processes. Studying is the only way to retain all this information. For each hour of lecture, spend at least two hours studying on your own. Spread that time during the week, there is a significant body of research showing that the most productive studying is achieved by studying for 20-30 minutes blocks. It is not wise to rely on binge- studying the night before an exam. Mega study sessions tend to result in huge headaches and memory blackouts at exam time.

2 – The most effective way to study is to review your class notes on the same day of class, take your own notes, not just sit passively listening. On the same day of class, possibly shortly after it, take 5-10 minutes to review what was said in class, note what you are unclear about and either go to office hours or ask for explanation during Q&A of the following class. At the end of each week, review what you have learned at the end of each week, as if you had an exam on the following week.

3 – How to know if something is going to be in the exam? All geology topics discussed in lecture can be in the exam questions. The course will not cover all that is in the book, but all that is in the notes AND has been covered in class can be question material for the exam.

4 - It is a good thing to have questions and doubts as you study; it means your brain is working at understanding and elaborating the newly acquired knowledge. Ask questions during class as well as take advantage of office hours (it is like free tutoring).

5 - Engage with the topics of geology. Talk about what you learned in class, create study sessions with your classmates, and talk about geology with family and friends. Make observations of your surroundings, pay attention when geology-related topics come up in the news, try to identify rocks that might crop out just outside your place or you may have at home. Above all, enjoy learning about your home planet!